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AUTHOR	Walker, David M.
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ABSTRACT

The Comptroller General of the United States testified before Congress regarding the General Accounting Office's (GAO's) framework for building the information technology (IT) work force to achieve results. The following were among the key points of his testimony: (1) the federal government is facing pervasive human capital challenges that are eroding the ability of many agencies to perform their missions economically, efficiently, and effectively; (2) many parties, including the President, federal department and agency leaders, Congress, the private sector, and academia, will need to work to address the government's human capital problem; (3) human capital issues are having a particular bearing on the IT area inasmuch as the federal government's ability to acquire and use IT successfully will hinge on its ability to build, prepare, and manage its IT work force; and (4) federal agencies must overcome these two basic challenges related to IT human capital: a shortage of skilled workers and the need to provide a broad range of related staff training and development. (The following items are appended: the GAO's human capital framework; examples of federal agencies with human capital challenges; and a list of the responsibilities of selected agencies/organizations and sectors for the addressing human capital challenges.) (MN)

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HUMAN CAPITAL

Building the Information Technology Workforce to Achieve Results

Statement of David M. Walker
Comptroller General of the United States

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Human Capital: Building the Information Technology Workforce to Achieve Results

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to discuss with you this morning the federal government's strategic human capital management challenges, with particular emphasis on the information technology area.

No management issue facing federal agencies could be more critical to their ability to serve the nation than their approach to attracting, retaining, and motivating people. The need is a reflection of the times: Our society has transitioned from the industrial age to the knowledge age, and people are the source of all knowledge. Every organization today depends on its people to contribute knowledge, create knowledge, and put knowledge to practical use. Federal agencies are no different. For these organizations, having sufficient numbers of people on board with the right mix of knowledge and skills will make the difference between success and failure. This is especially true in the information technology area, where widespread shortfalls in human capital have contributed to demonstrable shortfalls in agency and program performance.

I would like to make two main points:

First, the federal government today faces pervasive human capital challenges that are eroding the ability of many agencies—and threatening the ability of others—to economically, efficiently, and effectively perform their missions. Many parties will need to work to address these challenges, including the President, department and agency leaders, the Office of Management and Budget, the Office of Personnel Management, the Congress, the private sector, foundations and academia, and even the press.

Second, how successfully the federal government acquires and uses information technology will continue to hinge on its ability to build, prepare, and manage its information technology workforce. However, agencies must overcome two basic challenges related to IT human capital: a shortage of skilled workers and the need to provide a broad range of related staff training and development. These are essential challenges to address so that the managers and staff can effectively operate and maintain government systems, adequately oversee related contractor support, and deliver responsive service to the public.

In addition to discussing these two main points, at the Subcommittee's request I will briefly discuss selected GAO human capital efforts. Also, I

will briefly discuss human capital challenges facing the government's acquisitions workforce.

Background: What We Mean By "Human Capital"

We at GAO use the term "human capital" because—in contrast to traditional terms such as personnel and human resource management—it focuses on two principles that are critical in a modern, results-oriented management environment. First, people are assets whose value can be enhanced through investment. As the value of people increases, so does the performance capacity of the organization and therefore its value to clients and other stakeholders. As with any investment, the goal is to maximize value while managing risk. Second, an organization's human capital approaches must be aligned to support the mission, vision for the future, core values, goals and objectives, and strategies by which the organization has defined its direction and its expectations for itself and its people. An organization's human capital policies and practices should be designed, implemented, and assessed by the standard of how well they help the organization pursue these intents and achieve related results.

It is clear that, in many government entities and functional areas such as information technology and acquisitions, the transition to modern, results-oriented management—and along with it, to strategic human capital management—will require a cultural transformation. Hierarchical management approaches will need to yield to partnerial approaches. Process-oriented ways of doing business will need to yield to results-oriented ones. And siloed organizations will need to become integrated organizations if they expect to make the most of the knowledge and skills of their people. Government entities that expect to ensure accountability for performance and make the best use of their human capital will need to build a solid foundation in strategic planning and organizational alignment, leadership and succession planning, recruiting and training the best possible talent, and creating a strong performance culture—including appropriate performance measures and rewards and a focus on continuous learning and knowledge management.

A key step for agencies is to focus on human capital as a strategic asset. Agencies can begin by assessing how well their existing human capital approaches support their missions, goals, and other organizational needs. A useful self-assessment tool is our human capital checklist, which identifies a number of human capital elements and underlying values that

are common to high-performing organizations.[1] (See attachment I.) We have used the checklist's assessment framework to guide our recent inquiries into human capital issues across the federal government and at specific agencies, some of which are using the framework in their human capital planning efforts. We have also used this framework to assess and guide our own internal GAO efforts.

Strategic Human Capital Management: Confronting The High-Risk Challenge

High-performing organizations in the private and public sectors have long understood the relationship between effective "people management" and organizational success. However, the federal government, which has often acted as if federal employees were costs to be cut rather than assets to be valued, has only recently received its wake-up call. As our January 2001 Performance and Accountability Series reports made clear, serious federal human capital shortfalls are now eroding the ability of many federal agencies—and threatening the ability of others—to economically, efficiently, and effectively perform their missions.[2] Agencies' strategic human capital management challenges involve such key areas as strategic human capital planning and organizational alignment; leadership continuity and succession planning; acquiring and developing staffs whose size, skills, and deployment meet agency needs; and creating results-oriented organizational cultures. Attachment II provides examples of the federal government's pervasive human capital challenges, from military recruitment shortfalls at the Department of Defense to staff and skills losses at the National Aeronautics and Space Administration to inadequate workforce planning at the Environmental Protection Agency.

In January 2001, we added strategic human capital management to our list of federal programs and operations identified as high risk.[3] However, we continue to stress that federal employees are not the problem. Rather, the problem is a long-standing lack of effective leadership and management, along with the lack of a strategic approach to marshaling, managing, and maintaining the human capital needed for government to discharge its

[1] See *Human Capital: A Self-Assessment Checklist for Agency Leaders* (GAO/OCG-00-14G, Sept. 2000).

[2] *Performance and Accountability Series—Major Management Challenges and Program Risks: A Governmentwide Perspective* (GAO-01-241, Jan. 2001). In addition, see the accompanying 21 reports, numbered GAO-01-242 through GAO 01-262, on specific agencies.

[3] *High-Risk Series: An Update* (GAO-01-263, Jan. 2001). In addition, see *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 1, 2001).

responsibilities and deliver on its promises. After a decade of government downsizing and curtailed investments in people, it is becoming increasingly clear that today's federal human capital strategies are not appropriately constituted to meet the current and emerging needs of the nation's government and its citizens. The federal government's approach to people management includes a range of outmoded attitudes, policies, and practices that warrant serious and sustained attention. To view federal employees as costs to be cut rather than as assets to be valued would be to take a narrow and shortsighted view—one that is obsolete and must be changed.

Ever since we added strategic human capital management to our high-risk list, we have been asked what would need to happen for it to be removed. Clearly, we will need to see measurable and sustainable improvements in the economy, efficiency, and effectiveness with which the government as a whole and the individual agencies manage their workforces to achieve their missions and goals. I believe that congressional hearings such as today's demonstrate that the momentum for these improvements is building, but the process will undoubtedly take time.

Clearly, there is very little time to waste. Changes in the demographics of the federal workforce, in the education and skills required of its workers, and in employment structures and arrangements are all continuing to unfold. The federal workforce is aging; the baby boomers, with their valuable skills and experience, are drawing nearer to retirement; new employees joining the federal workforce today have different employment options and different career expectations from the generation that preceded them. In response to an increasingly competitive job market, federal agencies will need the tools and flexibilities to attract, retain, and motivate top-flight talent. More and more, the work that federal agencies do requires a knowledge-based workforce that is sophisticated in new technologies, flexible, and open to continuous learning. This workforce must be adept both at delivering services directly and at effectively managing the cost and quality of services delivered by third parties on the government's behalf. Agencies' employment structures and working arrangements will also be changing, and the workplace will need to accommodate a greater mix of full-time, part-time, and temporary workers; more contracting-out; less job security; and the possibilities of additional government downsizing and realignments.

With these challenges in mind, it is clear that federal agencies must not wait to modernize their human capital policies and practices. Key

elements such as hiring, staffing, compensation, promotions, training and development, and performance management all need to be aligned with organizational missions and goals, and must be approached as interrelated parts of a coherent human capital management strategy. Other elements must also be considered. In the information area in particular, other key elements will include sourcing, contract oversight, knowledge management, and systems development. Overall, and in critical occupational areas, agencies can and must take the initiative to be more competitive in attracting new employees with needed skills; design and implement modern, effective and credible performance evaluation systems; create the kinds of performance incentives and training programs that motivate and empower employees; and build labor-management relationships that are based on common interests and the public trust. To shape human capital strategies that support their specific needs and circumstances, agencies must give strategic human capital management the enhanced and sustained attention it deserves, modernize their existing human capital policies and practices, and identify and make use of the tools and flexibilities available to them under current law.

To address the federal government's human capital challenges as a whole, we believe a three-stage approach is appropriate. First, agencies must take all administrative steps available to them under current laws and regulations to manage their people for results. Much of what agencies need to accomplish by way of focusing on human capital management is already available to them.[4] They will, however, need the sustained commitment from top management and the support from both the Office of Management and Budget (OMB) and the Office of Personnel Management (OPM) to make the most of their existing authorities. Second, the Administration and the Congress should pursue selected legislative opportunities to put new tools and flexibilities in place that will help agencies attract, retain, and motivate employees—both overall and, especially, in connection with critical occupations such as those in IT. Third, all interested parties should work together to determine the nature and extent of more comprehensive human capital (or civil service) reforms that should be enacted over time. These reforms should include greater emphasis on skills, knowledge, and performance in connection with federal employment and compensation decisions, rather than the passage of time and rate of inflation, as is often the case today.

[4] *See Human Capital. Taking Steps to Meet Current and Emerging Human Capital Challenges* (GAO-01-965T, July 17, 2001).

Mr. Chairman, as is clear from the array of witnesses you have gathered for today's hearing, addressing the federal government's human capital challenges is a responsibility shared by many parties. This includes the President, department and agency leaders, OMB, OPM, the Congress, the private sector, foundations and academia, and even the press. (See attachment III). As I have noted elsewhere, strategic human capital management has yet to find the broad conceptual acceptance or political consensus needed for comprehensive legislative reform to occur. In this sense, human capital remains the missing link in the framework of federal management reforms enacted by the Congress over the past decade—reforms that addressed such essential elements of high performing organizations as financial management, information technology management, and results-oriented goal-setting and performance measurement. However, I believe that the day is approaching when we will see comprehensive federal human capital legislative reform. The essential ingredients for progress in this area are leadership, vision, commitment, persistence, communications, and accountability.

Notably, OPM and OMB have taken steps in the past year to help raise awareness of the federal government's human capital challenges and to encourage and enable agencies to make progress in this area. For example, OPM has begun stressing to agencies the importance of integrating strategic human capital management with agency planning and has also been focusing more attention on developing tools to help agencies, such as new Senior Executive Service performance standards and a workforce planning model with associated Web-based research tools. Some of OPM's efforts have been directed specifically at addressing human capital challenges in the information technology area. For example, in January 2001, OPM created a new special-rate authority to boost the pay of approximately 33,000 current federal information technology workers covered by the General Schedule (GS) at grades GS-5, 7, 9, 11, and 12. Both current and new federal employees are covered by the new pay rates. Further, OPM has issued a new "job family" classification standard for IT-related positions that revises and updates the previous standard and incorporates many formerly separate IT-related occupations into one. The new special pay rates and classification standard are intended to give agencies more flexibility in their IT-related recruiting and retention efforts.

OMB's role in setting governmentwide management priorities and defining resource allocations will be critical to inducing agencies to integrate strategic human capital into their core business processes. Toward that end, OMB has made strategic management of human capital one of the five

key elements of the President's Management and Performance Plan, along with budget and performance integration, expand competitive sourcing, improving financial performance, and expanding e-government.

OMB's current guidance to agencies on preparing their strategic and annual performance plans states that the plans should set goals in such areas as recruitment, retention, and training, among others. Further, early this year, OMB instructed agencies to submit a workforce analysis by June 29, 2001. Each agency's analysis was to include summary information on the demographics of the agency's permanent, seasonal, and temporary workforce; projected attrition and retirements; an evaluation of workforce skills; expected changes in the agency's work; recruitment, training, and retention strategies being implemented; and barriers to maintaining a high-quality and diverse workforce. The information that agencies were to develop may prove useful in identifying human capital areas needing greater attention and, moreover serve as an important first step toward the development of agency-specific 5-year restructuring plans in the context of the agencies' fiscal year 2003 budget requests and annual performance plans.

Our experience so far indicates that most agencies have a way to go before producing human capital strategies that are integrated with their strategic and programmatic planning processes. For example, earlier this year, we reported on the extent to which the 24 agencies covered by the Chief Financial Officers Act discussed human capital issues in their fiscal year 2001 performance plans.[5] Overall, agencies' plans reflected different levels of attention to human capital, ranging from merely identifying human capital challenges to putting forward solutions to address those challenges, such as defining actual plans, committing resources, and assigning accountability. We found that, in general, agencies needed to increase the breadth, depth, and specificity of many related human capital goals and strategies and to better link them to the agencies' strategic and programmatic planning. Currently, we are preparing a summary of agencies' attention to human capital issues in their fiscal year 2002 performance plans. Although the summary is not yet complete, our preliminary review indicates that the agencies continue to have difficulty

[5] *Managing for Results: Human Capital Management Discussions in Fiscal Year 2001 Performance Plans* (GAO-01-236, Apr. 24, 2001). As part of the Government Performance and Results Act annual performance planning requirements, agencies are to establish results-oriented performance goals and describe the strategies and resources—including human capital—needed to accomplish those goals.

in linking their human capital goals to meaningful performance measures or programmatic results. For example, agencies' workforce planning efforts generally were not targeted toward specific agency programmatic outcomes.

Rapid Changes In Information Technology Require A Skilled And Well-Managed Workforce

As agencies wrestle with human capital management, they face a significant challenge in the information management and technology area. The rapid pace of technological change and innovation in the current information age poses wide-ranging opportunities for improved information management and enhanced performance in achieving agency missions and goals. Investments in information technologies alone are expected to account for more than 40 percent of all capital investment in the United States by 2004. The federal government's IT investment is conservatively estimated in fiscal year 2002 to be $44 billion—an increase in federal IT spending of 8.6 percent from fiscal year 2000.[6] This investment is substantial and should provide opportunities and demonstrate real results for increasing productivity and decreasing cost. Already, we have over 1,300 electronic government initiatives under way throughout the federal government, covering a wide range of activities involving interaction with citizens, business, other governments, and employees[7].

However, federal executives and managers must also be cognizant of the responsibilities and challenges that accompany these opportunities. Among these challenges are:

- *sustaining* committed executive leadership and involvement in technology initiatives;
- *building* effective e-government business cases that identify full costs and expected benefits;
- *maintaining* a citizen focus in service delivery;
- *protecting* personal privacy and providing a secure computing environment to reduce the risks of unauthorized access, which can lead to fraud, theft, destruction of assets, and service disruptions;

[6] *Published data from agency Exhibit 53s*, Office of Management and Budget (April 9, 2001)

[7] *Electronic Government: Challenges Must Be Addressed With Effective Leadership and Management* (GAO-01-959T, July 11, 2001).

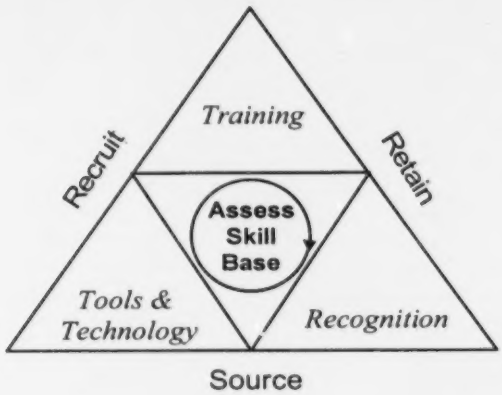
- *developing* adequate capabilities for storing, retrieving, and when, appropriate, disposing of electronic records;
- *providing* a robust technical infrastructure guided by sound enterprise architectures; and
- *ensuring* uniform service to the public using multiple methods of access to government services and process.

Additionally, the rush to electronic government can lessen the emphasis on the critical human element. Agencies must overcome two basic challenges related to IT human capital—a shortage of skilled workers and the need to provide a broad range of related staff training and development. These are essential challenges to address so that that staff can effectively operate and maintain new e-government systems, adequately oversee related contractor support, and deliver responsive service to the public.

Indeed, in our own study of public and private sector efforts to build effective Chief Information Officer (CIO) organizations,[8] we found that leading organizations develop IT human capital strategies to assess their skill bases and recruit and retain staff who can effectively implement technology to meet business needs. Figure 1 provides an overview of a common strategy that organizations in our study used to secure human capital for information management.

[8] *Maximizing the Success of Chief Information Officers: Learning from Leading Organizations* (GAO-01-376G, February 2001).

Figure 1: Strategy for Securing IT Human Capital in Leading Organizations



Leading organizations assess their IT skills on an ongoing basis to determine what expertise is needed to meet current responsibilities and support future initiatives. Needed skills are compared with existing capabilities in the organization to determine gaps in the IT skills base. Strengthening IT skills and capabilities identified in the gap analysis is addressed though training and innovative hiring practices as part of a formula for building information technology and management capabilities. Further, we found effective CIO organizations cultivate expertise in their internal workforces while outsourcing skills that are available from multiple sources at lower cost. In short, effective staffing and sourcing strategies provided the organizations we studied with dynamic, flexible workforces that can execute IT management functions to meet changing business needs and priorities.

As agencies complete their skills inventories and perform gap analyses against existing and future IT requirements, it will be important for executives to determine an appropriate IT sourcing strategy. This should include an examination of the current and future IT market and a corresponding assessment of the agency's ability to attract, hire and retain managers and staff the needed skills. This information should inform strategic decisions about the appropriate nature and scope of IT sourcing needs that are both short and longer-term in nature. Agency executives should also differentiate between core skills needed to maintain a IT management "steady state" versus just-in-time needs in hot jobs areas to address peak workloads brought about by events such as the Year 2000 date conversion crisis, immediate computer security vulnerabilities, or

creation of publicly accessible on-line forms required by legislative or executive branch deadlines. Irrespective of the final decisions regarding what IT functions are performed by federal employees or contractors, agencies must have an adequate number of skilled IT professionals to oversee the cost, quality, and performance of IT contractors.

It is also important to note that the IT human capital challenge is not just an issue unique to our government or nation alone. The Organization for Economic Co-operation and Development (OECD)—an international organization that studies how governments organize and manage the public sector and identifies emerging challenges that governments are likely to face—recently issued a report discussing the recurring problem of the lack of IT skills in the public sector.[9] The report found that the lack of IT skills makes it impossible for some countries to develop technology in-house and establishes an imbalance in relations between purchasers and providers. Moreover, as in the United States, against the background of a very tight IT labor market and an ever-increasing demand for highly qualified staff, the report noted that the competitiveness of the public employer has to be visibly strengthened.

Interestingly, solutions seem to vary according to the different traditions in OECD member countries and can include higher wages, differentiated pay systems, better knowledge management, and better human resources management. For example, many countries have undertaken knowledge management initiatives, including training of staff and collecting IT-related information in databases. To illustrate, the United Kingdom has set up a database on all high-profile public sector IT-enabled projects, including project descriptions as well as a list of people running these initiatives. The database is expected to allow existing resources to be incorporated in future projects.

Demand for Skilled IT Workers Remains Substantial Despite Recent Slowdown

The demand for IT workers remains robust despite the decrease in demand over the last year. Notwithstanding the recent economic slowdown, employers from every sector, including the federal government, are still finding it difficult to meet their needs for highly skilled IT workers. In the long term, demand is expected to increase. The Bureau of Labor Statistics projects that the demand for computer systems

[9] *The Hidden Threat to E-Government: Avoiding Large Government IT Failures*, OECD Public Management Policy Brief Number 8 (Mar. 2001).

analysts, engineers, and scientists will almost double between 1998 and 2008 and the demand for computer programmers will increase by 30 percent during the same time period.[10] While recent data indicate a slowing demand, the ability of the United States to meet this demand is still considered a problem. In April, the Information Technology Association of America (ITAA) released a study on the size of the private-sector IT workforce, the demand for qualified workers and the gap between the supply and demand.[11] Among the study's top findings were the following:

- Information technology employment remains at the forefront of the United States economy, directly accounting for approximately 7 percent of the nation's total workforce. Over 10.4 million people in the United States are IT workers, an increase of 4 percent over the 10 million reported for last year.
- The demand for IT workers—while slowing—remains substantial, as employers attempt to fill over 900,000 new IT jobs in 2001. For example, the demand for skilled IT workers by large IT firms has doubled over the year 2000 figure. However, ITAA has noted that overall demand for IT workers is down 44 percent from last year's forecast, attributable in part, to the slowdown in the high tech sector and the economy in general. Still, the drop does not reflect a fall-off in IT employment, which will increase year to year.
- The talent gap for IT workers remains large. Hiring managers reported an anticipated shortfall of 425,000 IT workers because of a lack of applicants with the requisite technical and non-technical skills.

The ITAA also reported that despite softening in overall demand, technical support, database development/administration, programming/software engineering, web development/administration, and network design/administration are the "hot skills" that remain most in demand by IT and non-IT companies alike. These positions represent nearly 86 percent of the demand for IT workers. The study further notes that the demand for enterprise systems professionals and network designers and administrators increased by 62 percent and 13 percent respectively. The increases suggest that companies may be staffing less in anticipation of

[10] "The 1998-2008 Job Outlook in Brief" Occupational Outlook Quarterly (Bureau of Labor Statistics, Spring 2000).

[11] *When Can You Start? Building Better Information Technology Skills and Careers*, Information Technology Association of America (April 2001).

winning new business and concentrating instead on rationalizing technology investments, tightening operations and making infrastructure improvements.

Sustained Attention to Federal IT Human Capital Challenges Is Key to Achieving Agency Performance Improvements

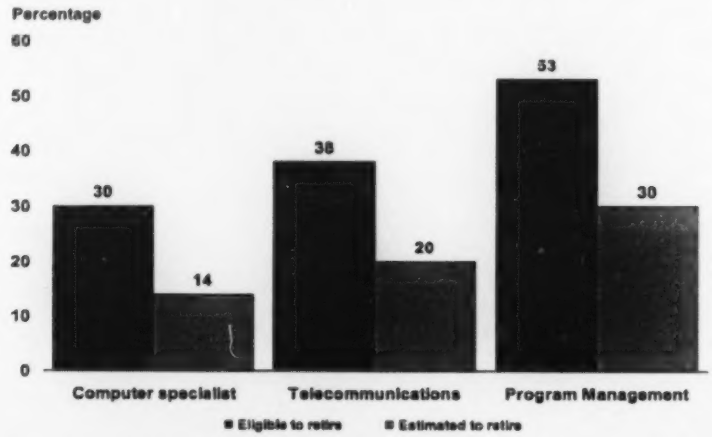
As is apparent, the need for qualified IT professionals has placed the public sector in direct competition with the private sector for scarce resources. For the second consecutive year, federal CIOs have identified the need for skilled IT workers as their most critical issue.[12] This is related to the stark reality that a substantial portion of the federal workforce will retire between fiscal years 1999 and 2006. We recently estimated that by 2006 about 31 percent[13] of 24 major departments and agencies' employees working in 1998 will be eligible to retire, and that through the end of 2006 about half of those eligible will actually retire.[14] In the area of IT, all 24 major departments and agencies reported that they consider the occupation in the computer specialist series as mission-critical. We estimated that 30 percent of the employees in this series would be eligible to retire by the end of fiscal year 2006 and that 14 percent would retire by then. (See figure 2).

[12] *Update: Implementation of the Federal IT Workforce Challenge Recommendations*, Chief Information Officers Council, Federal IT Workforce Committee (Mar. 21, 2001).

[13] The eligibility estimate of 31 percent is based on cumulative data, which includes those already eligible and those reaching retirement eligibility between fiscal years 1999 through 2006, less the estimated 4 percent who are estimated to leave before they become eligible to retire.

[14] *Federal Employee Retirements: Expected Increase Over the Next 5 Years Illustrates Need for Workforce Planning* (GAO-01-509, Apr. 27, 2001).

Figure 2: Eligible and Estimated Percentage of Selected Federal Workforce to Retire in FY 2006



Source: *Federal Employee Retirements, Expected Increase Over the Next 5 Years Illustrates Need for Workforce Planning* (GAO-01-509, Apr. 27, 2001).

Federal organizations such as OPM and the federal CIO Council are taking a number of steps towards developing solutions for the federal government's IT human capital solutions. For example, as I mentioned earlier, in January 2001 OPM established higher pay rates for new and currently employed computer specialists, computer engineers, and computer scientists at grades GS-5, 7, 9, 11, and 12—the levels at which OPM identified the most severe federal IT staffing problems and at which it found that GS salaries lag far behind non-federal salaries. In combination with the across-the-board GS increase, the special pay rates produced overall net increases ranging from 7 percent to 33 percent for most affected employees. The special rates are designed to help agencies address significant problems in recruiting high-quality entry- and developmental-level federal IT workers with the latest skills. OPM has stated that it will continue to monitor the IT staffing situation to determine whether the special rates should be expanded. It will be important to track how the salary increases affect the federal government's ability to hire and retain qualified IT professionals.

The CIO Council also has a Federal IT Workforce Committee focused on facilitating activities designed to (1) improve the federal government's ability to attract and retain a top-notch IT workforce and (2) expand

effective IT education and training opportunities for the existing federal workforce.[15] Among the Council's initiatives is the support of the CIO University, which is a collaborative effort between the federal government and private institutions to develop IT executives and support of the Strategic and Tactical Advocates for Results (STAR) program. STAR is a graduate-level program designed to create an optimal learning environment for professionals. The Council also committed to reviewing and revising the CIO core competencies on a biennial basis. These competencies serve as a tool for determining IT skills, knowledge, and education requirements.

To help better understand the magnitude of federal IT human capital issues and possible alternatives for new solutions, the CIO Council and the Administrative Office of the U.S. Courts asked the National Academy of Public Administration (NAPA) to study IT compensation strategies and to make recommendations on how the government can best compete for IT talent. NAPA has completed and reported on the first phase of this study. NAPA expects to complete its final report by mid-September. It will contain an evaluation of alternative compensation models and address recommended solutions.

Table 1 summarizes NAPA's overall comparison of compensation and work factors among various sectors, which demonstrates some of the similarities and differences among the sectors. NAPA's high, medium, and low designations shown below are based on an overall evaluation of data and information obtained for organizations in each sector in comparison with the other sectors.

[15] *Strategic Plan: Fiscal Year 2001-2002*, Chief Information Officers Council (October 2000).

Table 1: Overall Comparison of Compensation and Work Factors

Sector	Salary levels	Work-life benefits	Rewards/ recognition	Advancement/ Training	Use of recruiting tools
Federal	Low	High	Low	Low	Low
State	Low	Medium	Medium	Medium	Medium
Local	Low	Medium	Medium	Low	Low
Non-profit	Medium	Medium	Medium	Medium	High
Private	High	High	High	High	High
Academia	Medium	High	Medium	Medium	Medium

Source: *Comparative Study of Information Technology Pay Systems: Executive Study* (NAPA, March 2001).

Agencies' Progress in Addressing IT Human Capital Strategies Has Been Sluggish

To date, we have issued reports on the IT human capital management practices at two agencies—the Small Business Administration (SBA) and the United States Coast Guard.[16] We also have similar work ongoing at the Social Security Administration and the Centers for Medicare and Medicaid Services. Our evaluations have focused on agency practices in four areas:

- **Requirements**—assessing the knowledge and skills needed to effectively perform IT operations to support agency mission and goals
- **Inventory**—determining the knowledge and skills of current IT staff to identify gaps in needed capabilities
- **Workforce strategies and plans**—developing strategies and implementing plans for hiring, training, and professional development to fill the gap between requirements and current staffing
- **Progress evaluation**—evaluating progress made in improving IT human capital capability, and use the results of these evaluations to continuously improve the organization's human capital strategies

The results of our reviews indicate that although agencies are initiating strategies and plans to attract, retain, and/or train a skilled IT workforce, much remains to be done. Common weaknesses include a lack of (1) organizational commitment, (2) effective workforce planning, and (3) meaningful performance evaluation systems. For example, none of the agencies we reviewed had completed workforce planning activities, such as identifying knowledge and skill requirements and inventorying current staff capabilities. Further, none had developed and implemented

[16] *Information Technology Management: SBA Needs to Establish Policies and Procedures for Key IT Processes* (GAO/AIMD-00-170, May 31, 2000) and *Information Technology Management: Coast Guard Practices Can Be Improved* (GAO-01-190, Dec. 12, 2000).

mechanisms to evaluate progress in improving staff IT capabilities and therefore lacked the evaluation results that would have been used to continuously improve human capital strategies.

The ramifications of the deficiencies in the agencies' IT human capital management efforts are serious. Without complete assessments of IT skill needs, agencies will lack assurance that they have effectively identified the number of staff they will require with the specific knowledge and skills needed to sustain their current and future operations and developed strategies to fill these needs. Also, lacking an inventory of IT knowledge and skills, agencies will not have assurance that they are optimizing the use of current IT workforce nor have data on the extent of IT skill gaps. This information is necessary to developing effective workforce strategies and plans. Further, without analyzing and documenting the effectiveness of workforce strategies and plans, senior decisionmakers lack assurance that they are effectively addressing IT knowledge and skill gaps.

GAO Has Taken Steps To Meet Human Capital Challenges, Including Those In The It Area

At GAO, we have faced human capital challenges similar to those facing the federal government in general and the IT area specifically. However, we have made human capital management a top priority. We are undertaking a wide array of initiatives in this area and are investing considerable time, energy, and financial resources to make them work.[17] The aim of these efforts is to enhance our performance and assure our accountability by attracting, retaining, and motivating a top-quality workforce, including staff in critical occupations such as IT. We have identified and made use of a variety of tools and flexibilities, some of which were made available to us through the GAO Personnel Act of 1980 and some through legislation passed by the Congress in 2000, but most of which are available across the broad spectrum of federal agencies.

The past decade was a difficult one for ensuring that GAO's workforce would remain appropriately sized, shaped, and skilled to meet its mission demands. Severe downsizing of the workforce, including a suspension of most hiring from 1992 through 1997, and constrained investments in such areas as training, performance incentives and rewards, and enabling technology, left us with a range of human capital challenges that we have begun to address. We face certain skills imbalances that include a pressing

[17] See *Human Capital: Taking Steps to Meet Current and Emerging Human Capital Challenges* (GAO-01-965T, July 17, 2001).

need for information technology professionals, but also for other skilled professionals such as accountants, statisticians, economists, and health care analysts. Further, we face a range of succession planning challenges. Specifically, by fiscal year 2004, 55 percent of our senior executives, 48 percent of our management-level analysts, and 34 percent of our analyst and related staff will be eligible for retirement. Moreover, at a time when a significant percentage of our workforce is nearing retirement age, marketplace, demographic, economic, and technological changes indicate that competition for skilled employees will be greater in the future, making the challenge of attracting and retaining talent even more complex.

To address these challenges, we have taken numerous steps, all designed to support our strategic plan, which describes our role and mission in the federal government; our core values of accountability, integrity, and reliability that guide our work; the trends, conditions, and external factors underlying the plan; and our goals, objectives, and strategies for serving the Congress. From a human capital standpoint, our strategic plan and core values are our touchstones for designing, implementing, and evaluating our approaches to managing our people. These two vital elements will also be the foundation for our revised institutional and individual performance measurement and reward systems.

In addition to laying the groundwork through strategic planning, in the fall of 2000 we realigned our mission-related functions at headquarters and the field to better support the Congress and prepare ourselves, with current and expected resource levels, to meet the future challenges outlined in our strategic plan. As with strategic planning, organizational alignment is crucial if an agency is to maximize its performance and assure its accountability. The choices that go into aligning an organization to support its strategic and programmatic goals have enormous implications for further decisions about human capital management, such as what kinds of leaders the agency should have and how it will best ensure leadership continuity, how skills needs will be identified and filled—particularly in critical occupations such as IT—and what strategies the agency will use to steer the organizational culture to maximize its results.

We have taken many administrative steps to enhance the value of our human capital. (See figure 3).

Figure 3: Administrative Actions to Address GAO's Human Capital Challenges

Also, as seen in figure 4, we have pursued flexibilities that were made available to us through legislation. It should be noted that strategic human capital management is a work-in-progress for us, as it is for others. Our approaches are not the only way for agencies to proceed, but they can help others to see their way forward to addressing their individual human capital challenges.

Figure 4: Use of Legislative Flexibilities to Address GAO's Human Capital Challenges

- Broadbanding system for mission staff
- Excepted hiring authority (e.g., internship program)
- Special pay rates
- Senior Level for technical staff
- Targeted early outs and buyout authority
- Revised RIF rules

Among these challenges at GAO is the need to attract and retain IT and other technical staff. The steps we have taken to meet this challenge include the following:

- Expanding our overall recruiting efforts, to increase our presence at colleges and universities by leveraging technology and by our participation at area job fairs. To support our increased efforts, GAO is enhancing the existing Applicant Tracking System. This is an interim effort to render the system more user friendly and robust in order to meet the needs of GAO's staff involved in recruitment, while providing better service to GAO applicants. GAO is also exploring Web-based recruitment services that support the advertisement of vacancies, the receipt and processing of applications, and the development and maintenance of Web-based recruitment targeted for specific skills.
- Using a 25 percent pay differential (equal to the OPM pay differential for executive branch IT hires) to bring aboard entry-level technical staff for our IT team.
- Offering pay bonuses in attracting and retaining top IT talent with specific technical skill sets.
- Making wide use of contractor resources in the IT area to supplement both the numbers and skill sets of government employees. Currently, about 60 percent of the staff supporting GAO internal IT operations and initiatives are contractor staff. The other 40 percent are in-house staff. Given staffing constraints and market conditions, we have found this arrangement to work very well. We focus our training of in-house staff on project management, contract management, and technical training to ensure sound project management and oversight of the contractors. Using contractor resources has given us the ability to quickly bring on staff with the IT skills needed to carry out new projects/initiatives.
- Transitioning from a traditional classroom training approach to one that combines and balances classroom training with various online learning experiences that can be delivered at the desktop. To support this approach

to learning, GAO plans to acquire a system that will maintain on-line individual development plans supported by competency-based learning paths and to support the development and delivery of Web-based learning with on-line testing and on-line course evaluations.

- Using the authority that the Congress provided in our 2000 legislation to create Senior Level positions to meet certain scientific, technical, and professional needs and to extend to those positions the rights and benefits of SES employees. One of the areas targeted was IT. We recently named four new Senior Level technical IT positions, and provided a few other specialists—such as our Chief Statistician and Chief Accountant—with new titles and SES-equivalent benefits.

The authority to create Senior Level positions in certain critical areas reflects a specific need we identified and to which the Congress responded. As we assessed GAO's human capital challenges at the start of the new century—including those related specifically to the IT area—we recognized that our preexisting personnel authorities would not let us address these challenges effectively. Therefore, using comprehensive workforce data that we had gathered and analyzed to make a coherent business case, we worked with the Congress last year to obtain several narrowly tailored flexibilities to help us reshape our workforce and establish the Senior Level technical positions.

Along with the Senior Level positions, the legislation gave us additional tools to realign GAO's workforce in light of overall budgetary constraints and mission needs; to correct skills imbalances; and to reduce high-grade, managerial, or supervisory positions without reducing the overall number of GAO employees. To address any or all of these three situations, we now have authority to offer voluntary early retirement (VER) to a maximum of 10 percent of our employees each fiscal year until December 31, 2003. We also have the authority to offer voluntary separation incentive (VSI) payments to a maximum of 5 percent of our employees during each fiscal year until December 31, 2003. Further, in the case of a reduction-in-force (RIF), we have the authority to place a much greater emphasis in our decisionmaking on our employees' knowledge, skills, and performance, while retaining veterans' preference and length of service as factors to consider in connection with applicable RIFs.

Since the legislation was enacted, we have established agency regulations for implementing the VER program. Having analyzed GAO workforce data, we recently began offering voluntary early retirements to take effect from

October 1, 2001 until January 3, 2002. We have largely limited our voluntary early retirement offers to organizational areas in which we do not expect to grow, while at the same time stepping up our efforts to recruit and retain employees in critical occupations such as those related to information technology.

The development of agency regulations to cover VSIs and RIFs is still in progress. We have no plans to offer VSIs, nor do we intend to pursue any involuntary layoffs during this or the next fiscal year.

We believe that three of the authorities provided in our 2000 legislation may have broader applicability for other agencies and are worth congressional consideration at this time. Authority to offer voluntary early retirement and voluntary separation incentives could give agencies additional flexibilities with which to realign their workforces; correct skills imbalances; and reduce high-grade, managerial, or supervisory positions without reducing their overall number of employees. Further, the authority to establish Senior Level positions could help agencies become more competitive in the job market, particularly in critical scientific, technical, or professional areas.

Further Legislative Reforms Should Be Explored

Further, the Administration and the Congress should consider other legislative actions that would help federal employers address their human capital challenges. As demographics change, as the marketplace continues to evolve, we will continue to think strategically and proactively to identify areas in which new innovations would make good business sense. In this regard, we believe it is worth exploring selective legislative proposals to enhance the federal government's ability to attract, retain, and motivate skilled employees, particularly in connection with critical occupations, on a governmentwide basis. In addition to the three items I just mentioned, the following represent areas in which opportunities exist to better equip federal employers to meet their human capital needs:

- *Critical occupations.* Although agencies generally have more hiring and pay flexibilities today than in the past, further innovations might be explored to help federal agencies recruit, retain, and reward employees in such critical fields as information technology, where there is severe competition with other sectors for talent.
- *Recruiting funds.* In order to help attract and retain employees, consideration should be given to authorizing agencies to use appropriated funds for selective recruiting, recognition, and team building activities.

- *Professional development.* To encourage federal employees in their professional development efforts, consideration should be given to authorizing agencies to use appropriated funds to pay for selected professional certifications, licensing, and professional association costs.
- *Pay compression relief.* Executive compensation is a serious challenge for federal agencies, which to an increasing extent must compete with other governmental organizations—and with not-for-profit and private sector organizations—to attract and retain executive talent. In this regard, the existing cap on SES pay has increased pay compression between the maximum and lower SES pay levels, resulting in an increasing number of federal executives at different levels of responsibility receiving identical salaries. Further, pay compression can create situations in which the difference between executive and nonexecutive pay is so small that the financial incentive for managers to apply for positions of greater responsibility may disappear. The Congress needs to address this increasing pay compression problem. It could do so, perhaps, by delinking federal executive compensation from congressional pay, or by raising the cap on executive performance bonuses.
- *Cafeteria benefits.* Federal employees could be provided with flexible benefits available to many private sector workers under Section 125 of the Internal Revenue Service Code. This would give federal employees the ability to pay for such things as childcare or eldercare with pre-tax rather than after-tax dollars.
- *Frequent flyer miles.* Employees who travel on government business should be allowed to keep their "frequent flyer" miles—a small benefit but one that private sector employers commonly provide their people as part of a mosaic of competitive employee benefits. Let's face it, flying is not fun anymore. Allowing federal workers to keep these miles, as employees elsewhere can, is a small price to pay. In addition, federal agencies could still use gainsharing programs to reward employees and save the government travel costs. As you know, Mr. Chairman, there has already been some meaningful progress on this issue: Last week, the House Government Reform Committee approved a bill that would allow civil service employees to "retain for personal use promotional items received as a result of travel taken in the course of employment."
- *Phased retirement.* It may be prudent to address some of the succession planning issues associated with the rise in retirement eligibilities by pursuing phased retirement approaches, whereby federal employees with needed skills could change from full-time to part-time employment and receive a portion of their federal pension while still earning pension credits.

- *Fellowships.* The Congress should explore greater flexibilities to allow federal agencies to enhance their skills mix by leveraging the expertise of private and not-for-profit sector employees through innovative fellowship programs, particularly in critical occupations. Through such fellowships, private and not-for-profit professionals could gain federal experience without fully disassociating themselves from their positions, while federal agencies could gain from the knowledge and expertise that these professionals would bring during their participation in the program. Obviously, appropriate steps would have to be taken to address any potential conflicts. This concept could also be used to allow federal workers to participate in fellowship programs with private and not-for-profit sector employers.

Acquisition Workforce Challenges Hinder Government's Ability To Oversee Outside Contractors

The federal government spends about of $200 billion a year contracting for goods and services. We are concerned with having the right people with the right skills to successfully manage federal contracts. We all agree that dealing with this issue will not be easy. The government is facing ever-growing public demands for better and more economical delivery of products and services. At the same time, the ongoing technological revolution requires a workforce with new knowledge, skills, and abilities. And at the moment, agencies must address these challenges in an economy that makes it difficult to compete for people with the competencies needed to achieve and maintain high performance. This situation is aptly illustrated by the problems found in the growing area of acquiring services.

Federal agencies spend billions of tax dollars each year to buy services ranging from clerical support and consulting services to information technology services, such as network support, to the management and operation of government facilities, such as national laboratories. Our work continues to show that some service procurements are not being done efficiently, putting taxpayer dollars at risk. In particular, agencies are not clearly defining their requirements, fully considering alternative solutions, performing vigorous price analyses, or adequately overseeing contractor performance. Further, it is becoming increasingly evident that agencies are at risk of not having enough of the right people with the right skills to manage service procurements. Consequently, a key question we face in the federal government is whether we have today, or will have tomorrow, the ability to acquire and manage the procurement of increasingly sophisticated services the government needs.

The amount being spent on services is growing substantially. Last year alone, the federal government acquired more than $87 billion in services—a 24-percent increase in real terms from fiscal year 1990. In fact, government purchase of services now accounts for 43 percent of all federal contracting expenses—surpassing supplies and equipment as the largest component of federal contract spending. Another dimension to this issue is that federal agencies are increasingly contracting out for information technology services.

The growth in service contracting has largely been driven by the government's increased purchases of two types of services:

- information technology services, which increased from $3.7 billion in fiscal year 1990 to about $13.4 billion in fiscal year 2000, and
- professional, administrative, and management support services, which rose from $12.3 billion in fiscal year 1990 to $21.1 billion in fiscal year 2000.

The increase in the use of service contracts coincided with a 21-percent decrease in the federal workforce,[18] which fell from about 2.25 million employees as of September 1990 to 1.78 million employees as of September 2000.

As federal spending and employment patterns were changing, changes were also occurring in the way that federal agencies buy services. Specifically, there has been a trend toward agencies purchasing professional services using contracts awarded and managed by other agencies. For example, in 1996, the General Services Administration (GSA) began offering information technology services under its Federal Supply Schedule program,[19] and it now offers services ranging from professional engineering to laboratory testing and analysis to temporary clerical and professional support services. The use of the schedule program to acquire services has increased significantly over the past several years.

[18] This decrease reflects the total civilian employment for executive branch agencies, excluding the U.S. Postal Service and the Postal Rate Commission.

[19] Under the schedule program, GSA negotiates contracts with vendors for a wide variety of mostly commercial-type products and services, and permits other agencies to place orders under these contracts directly with the vendors. Traditionally, the program had generally been used for common goods, such as office supplies and furniture. According to GSA, it takes 268 days to award a contract using traditional methods, but it takes only 15 days, on average, to award an order under the schedule program.

Other governmentwide contracts have also come into use in recent years. The Federal Acquisition Streamlining Act of 1994 authorized federal agencies to enter into multiple-award, task- and delivery-order contracts for goods and services. These contracts provide agencies with a great deal of flexibility in buying goods or services while minimizing the burden on government contracting personnel to negotiate and administer contracts. The Clinger-Cohen Act of 1996 authorized the use of multiagency contracts and what have become known as governmentwide agency contracts to facilitate purchases of information technology-related products and services such as network maintenance and technical support, systems engineering, and integration services.

While we have seen the environment change considerably, what we have not seen is a significant improvement in federal agencies' management of service contracts. Simply stated, the poor management of service contracts undermines the government's ability to obtain good value for the money spent. This contributed to our decision to designate contract management a high-risk area for the Departments of Defense and Energy, the two largest purchasers within the federal government. Improving contract management is also among the management challenges faced by other agencies.

Compounding these problems are the agencies' past inattention to strategic human capital management. As I noted earlier, we are concerned that federal agencies' human capital problems are eroding the ability of many agencies—and threatening the ability of others—to perform their missions economically, efficiently, and effectively. For example, we found that the initial rounds of downsizing were set in motion without considering the longer-term effects on agencies' performance capacity. Additionally, a number of individual agencies drastically reduced or froze their hiring efforts for extended periods. Consequently, following a decade of downsizing and curtailed investments in human capital, federal agencies currently face skills, knowledge, and experience imbalances that, without corrective action, will worsen, especially in light of the numbers of federal civilian workers becoming eligible to retire in the coming years.

I would like to use DOD's experience to illustrate this problem. As we recently testified,[20] DOD's approach to civilian workforce reduction was

[20] *Human Capital: Major Human Capital Challenges at the Departments of Defense and State* (GAO-01-565T, Mar. 29, 2001).

not oriented toward shaping the makeup of the force. Rather, DOD relied primarily on voluntary turnover and retirements, freezes on hiring authority, and its authority to offer early retirements and "buy-outs" to achieve reductions. While DOD had these kinds of tools available to manage its civilian downsizing and to mitigate the adverse effects of force reductions, its approach to civilian force reductions was not really oriented toward shaping the workforce for the future. In contrast, DOD did a much better job managing active-duty military force reductions because it followed a policy of trying to achieve and maintain a degree of balance between its accessions and losses in order to shape its forces with regard to rank, specialties, and years of service.[21] As a result, DOD's current civilian workforce is not balanced and therefore poses risks to the orderly transfer of institutional knowledge. According to DOD's Acquisition 2005 Task Force, "After 11 consecutive years of downsizing, we [DOD] face serious imbalances in the skills and experience of our highly talented and specialized civilian workforce," putting DOD on the verge of a retirement-driven talent drain.[22]

DOD's leadership had anticipated that using streamlined acquisition procedures would improve the efficiency of contracting operations and help offset the effects of workforce downsizing. However, the DOD Inspector General reported that the efficiency gains from using streamlined procedures had not kept pace with acquisition workforce reductions. The Inspector General reported that while the workforce had been reduced by half, DOD's contracting workload had increased by about 12 percent[23] and that senior personnel at 14 acquisition organizations believed that workforce reductions had led to problems such as less contractor oversight.

While I have discussed DOD's problems at length, we believe our concerns are equally valid regarding the broader civilian agency contracting community. For example, our analysis of personnel data maintained by

[21] *Human Capital: Strategic Approach Should Guide DOD Civilian Workforce Management* (GAO/T-GGD/NSIAD-00-120, Mar. 9, 2000).

[22] *Shaping the Civilian Acquisition Workforce of the Future*, Final Report of the Acquisition 2005 Task Force to the Under Secretary of Defense, Acquisition, Technology, and Logistics and the Under Secretary of Defense, Personnel and Readiness (October 2000).

[23] *DOD Acquisition Workforce Reduction Trends and Impacts*, Office of the Inspector General, Department of Defense (Feb. 29, 2000).

OPM shows that while DOD downsized its workforce to a greater extent than the other agencies during the 1990s, both DOD and the other agencies will have about 27 percent of their current contracting officers eligible to retire through the end of fiscal year 2005. Consequently, without appropriate workforce planning, federal agencies could lose a significant portion of their contracting knowledge base.

Summary

As we underscored through our January 2001 designation of strategic human capital management as a governmentwide high-risk area, the federal government is facing pervasive human capital challenges. These challenges are eroding the ability of many agencies—and threatening the ability of others—to economically, efficiently, and effectively perform their missions. Many parties will need to work to address the government's human capital problems, including the President, department and agency leaders, OMB, OPM, the Congress, the private sector, foundations and academia, and even the press.

We believe that fundamental human capital legislative reform will eventually become a reality. However, agencies must first take the steps available to them under current laws and regulations to better manage their people. Second, agencies and the Congress alike should explore several legislative opportunities to help attract, motivate, and retain employees, both overall and especially in connection with critical occupations such as those in the information technology area. Finally, all interested parties should work together to determine the nature and extent of more comprehensive human capital (or civil service) reforms that should be enacted over time. These reforms should include placing greater emphasis on skills, knowledge, and performance in connection with federal employment and compensation decisions.

Human capital issues have particular bearing on the information technology area. How successfully the federal government acquires and uses information technology will continue to hinge on its ability to build, prepare and manage its information technology workforce. Agencies must overcome two basic challenges related to IT human capital: a shortage of skilled workers and the need to provide a broad range of related staff training and development. These challenges must be addressed so that federal managers and staff can effectively operate and maintain government systems, adequately oversee related contractor support, and deliver responsive service to the public.

Contact and Acknowledgments

For further information regarding this testimony, please contact Victor S. Rezendes, Managing Director, Strategic Issues, on (202) 512-6806 or at rezendesv@gao.gov. For information specific to the information technology portion of this testimony, please contact David L. McClure, Director, Information Technology Management, on (202) 512-6240 or at mcclured@gao.gov. For further information specific to the acquisitions related portion of this testimony, please contact David E. Cooper, Director, Acquisition and Sourcing Management, on (202) 512-4841 or at cooperd@gao.gov. Individuals making key contributions to this testimony included Stephen Altman, Margaret Davis, Ralph Dawn, Gordon Lusby, and Joseph Santiago.

Attachment I: GAO's Human Capital Framework

Strategic Planning: Establish the agency's mission, vision for the future, core values, goals and objectives, and strategies.

Shared vision
Human capital focus

Organizational Alignment: Integrate human capital strategies with the agency's core business practices.

Improving workforce planning
Integrating the "HR" function

Leadership: Foster a committed leadership team and provide for reasonable continuity through succession planning.

Defining leadership
Building teamwork and communications
Ensuring continuity

Talent: Recruit, hire, develop, and retain employees with the skills needed for mission accomplishment.

Recruiting and hiring
Training and professional development
Workforce deployment
Compensation
Employee-friendly workplace

Performance Culture: Empower and motivate employees while ensuring accountability and fairness in the workplace.

Performance management
Performance incentives
Continuous learning and improvement
Managers and supervisors
Job processes, tools, and mission support
Information technology
Inclusiveness
Employee and labor relations

Source: Human Capital: A Self-Assessment Checklist for Agency Leaders (GAO/OCG-00-14G, September 2000).

Attachment II: Examples of Federal Agencies with Human Capital Challenges

Agency	Illustrative human capital challenges
Agriculture	Organizational culture problems, including resistance from affected USDA agencies and employees, have hampered departmentwide reorganization and modernization efforts. Further, the nation's food safety system, in which USDA plays a major role, continues to suffer from inconsistent oversight, poor coordination, and inefficient deployment of resources.
Bureau of Indian Affairs	Untrained and inexperienced staff hamper effective management of $3 billion in Indian trust funds.
Commerce	A lack of sufficient numbers of experienced staff with the right expertise limits the ability of Commerce and two other trade agencies to monitor and enforce trade agreements.
Defense	In the past two years, the military services have struggled to meet recruiting goals. Attrition among first-time enlistees has reached an all-time high. The services face shortages among junior officers, and problems in retaining a range of uniformed personnel, including intelligence analysts, computer programmers, and pilots. On the civilian side, skills and experience imbalances following downsizing are jeopardizing acquisitions and logistics capabilities.
Energy	Headquarters and field staff have lacked contract management skills to oversee large projects, such as the cleanup of radioactive and hazardous waste sites.
Environmental Protection Agency	EPA has not yet implemented any systematic means of determining the right size, skills needs, or deployment of its workforce to carry out its mission and achieve its strategic goals and objectives, despite the demand for new skills due to technological changes and the shift in EPA's regional environmental responsibilities to the states, as well as growing retirement eligibilities in its workforce.
Federal Aviation Administration	In major acquisition projects, FAA has lacked technical expertise to address vital project issues.

Agency	Human capital challenges
Centers for Medicare and Medicaid Services	Medicare's leadership problems include the lack of any official whose sole responsibility it is to run the program. Further, frequent leadership changes at CMS have hampered long-term Medicare initiatives and the pursuit of a consistent management strategy. CMS' workforce lacks skills needed to meet recent legislative requirements. The mismatch between CMS' administrative capacity and its mandate could leave Medicare unprepared to handle future population growth and medical technology advances.
Housing and Urban Development	As HUD's reorganization moves into its final phases, workload imbalances pose programmatic challenges to several specialty centers and field offices. Single family mortgage insurance programs administered by HUD's Federal Housing Administration have been marked by a number of human capital challenges, including insufficient staff. Further, insufficient or inexperienced staff led to problems in quality assurance reviews for 203(k) home rehabilitation loans and oversight of appraisers and mortgage lenders.
Immigration and Naturalization Service	Lack of staff to perform intelligence functions and unclear guidance for retrieving and analyzing information hamper efforts to combat the growing problem of alien smuggling.
Interior and U.S. Forest Service	Difficulties replacing experienced fire personnel threaten firefighting capabilities during catastrophic events.
Internal Revenue Service	IRS lacks reliable cost and operational information to measure the effectiveness of its tax collection and enforcement programs and to judge whether it is appropriately allocating its staff resources among competing management priorities.
National Aeronautics and Space Administration	Staff and skills losses following downsizing pose potentially serious problems for the safety and planned flight rate of the space shuttle.
National Park Service	Historically, the Park Service's decentralized priority-setting and accountability systems left it without the means to monitor progress toward achieving its goals or hold park managers accountable for the results of park operations. The park concessions program continues to face management problems, including inadequate qualifications and training of the agency's concession specialists and concessions contracting staff. Insufficient fire safety training has contributed to fire safety risks at visitor centers, hotels, and other national park buildings.

Agency	Human capital challenges
Nuclear Regulatory Commission	NRC's organizational culture is struggling with the agency's new "risk-informed" regulatory approach. Further, NRC's ability to maintain the skills needed to achieve its mission and fill the gaps created by growing retirement eligibilities could be threatened by the decline in university enrollments in nuclear engineering and other fields related to nuclear safety.
Pension Benefit Guaranty Corporation	Because the agency did not adequately link its contracting decisions to long-term strategic planning, it may not have the cost-effective mix of contractor and federal employees needed to meet future workload challenges. Further, PBGC employees who monitor contractors lack adequate guidance and policies essential to monitoring contractor performance.
Social Security Administration	Increasing demand for services, imminent retirement of a large part of its workforce, changing customer expectations, and mixed success in past technology investments will challenge SSA's ability to meet its service delivery demands, which include faster and more accurate benefit claims determinations and increased emphasis on returning the disabled to work.
State	Issues related to the quality of life at overseas posts, career development opportunities, and talent management are hampering recruitment and retention of Foreign Service Officers. Efforts to determine the right size and composition of overseas posts have begun, but State faces challenges in aligning its workforce with new economic, political, security, and technological requirements. Also, staffing shortfalls are hampering counternarcotics programs and efforts to combat visa fraud.
US Agency for International Development	Staffing shortfalls in the procurement area have hampered the agency's ability to initiate and monitor contracts, thus delaying reconstruction assistance in the wake of natural disasters in Central America and the Caribbean.
Veterans Affairs	A national nursing shortage could adversely affect VA's efforts to improve patient safety in VA facilities and put veterans at risk. Further, VA's training and recruitment programs may not be adequate to ensure a sufficient workforce of competent claims processors, which would likely undermine efforts to improve current problems of claims processing backlogs and errors.

Source: GAO's Performance and Accountability Series, numbered GAO-01-241 to 262, January 2001.

Attachment III: Addressing the Human Capital Challenge: Shared Responsibilities

- **President**
  - Lead
  - Promote
  - Recognize
- **OMB**
  - Lead
  - Coordinate
  - Link
- **OPM**
  - Lead
  - Advise/Assist
  - Review
- **Departments/ Agencies**
  - Lead
  - Design
  - Implement
- **Congress**
  - Confirm
  - Oversee
  - Legislate
- **GAO**
  - Review
  - Recommend
  - Share
- **Private Sector**
  - Partner
  - Recognize
  - Support
- **Foundations**
  - Partner
  - Research
  - Integrate
- **Academia**
  - Partner
  - Revise
  - Promote
- **Media**
  - Learn
  - Investigate
  - Report

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